BSc Information Technology

2nd Semester | Digital Electronics | Paper -201
Maximum Marks,. 80 | Min.Pass Marks 32` | Time allowed 2 ½ hours

Note: Attempt all questions from Sections A and B and only two questions from Section C.

Section A(Very short answer type questions, each to be answered in about 20 words) 8x2=16

1. i) Convert the decimal number 23.1875 to binary.
   ii) Why are NAND and NOR gates called universal gates.
   iii) How is SOP form obtained from a truth table.
   iv) What is the difference between a multiplixer and a demultiplexer.
   v) How is a T-type FF obtained from a JK FF.
   vi) What is an astable multivibrator.
   vii) Define Access Time of memory.
   viii) Define Read-only Memory.

Section B(Short answer type questions, each to be answered in about 250 words) **4x8=32**

2. Sketch a two-input DTL gate and explain its working.
3. Realize the function:
   $F(a,b,c)=\Sigma(0,3,4,7)$
   With a 8:1 multiplexer.
4. Draw the circuit of a JK Flip Flop and explain its operation.
5. List applications of ROMS and explain with help of a suitable example any one of them.

Section C(Long answer type questions, each to be answered in about 250 words) 2x16=32

6. Describe the current components in a 8ipolar junction transistor. How can BJT operate as a switch.
7. Minimize the logic function and implement using NAND gates
   $F(a,b,c,c)=\Sigma(1,2,4,5,7,8,10,11,12,15)$
8. Design a 3-bit up/down synchronous counter using T-type Flip Flops.
9. a) Differentiate between Linear selection and x-y selection.
   b) Discuss a static MOS RAM Cell.

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